particles having a weak compressive strength at a location where pressure contact force is applied, such as a toner layer limiting member, and fine toner particles (toner fines) produced thereby are stuck to the toner carrier and the toner layer limiting member. Then, fusion bonding of fine toner particles further proceeds at each of portions where toner fines are stuck, as a core, so that the portion grows, eventually causing formation of undesired white lines on an image or following failure at filled-in areas of an image. As described above, even when the compressive strength (average value) of the toner is within a favorable range, if the toner partially contains toner particles having a small compressive strength (easily breakable), the toner particles can be crushed to cause deterioration of an image to an unallowable level.

Further, it is preferred that the standard deviation of the compressive strength is equal to or lower than 0.75.

It is preferred that the toner according to the invention has a number average particle diameter of 3 to 9 μm.

The number average particle diameter can be measured e.g. by using a "Coulter Counter TA-II", a "Coulter Multisizer" (both of which are available from Coulter Electronics Inc.), or a laser diffraction-type particle

Examples of the aluminum coupling agent include "Plainact AL-M" available from Ajinomoto Corporation.

The amount of addition of these surface modifiers is preferably in a range of 0.01 to 20% by mass, and more preferably 0.5 to 5% by mass with reference to the colorant.

Surface of the colorant may be modified in such way that the colorant is dispersed in a solvent, the surface modifier is added to the dispersion of the colorant, and then the dispersion is heated to conduct reaction. After termination of the reaction, the colorant having subjected to the surface modification is separated by filtration and dried after repeating rinsing and filtering with the same solvent.

Next, the method for manufacturing the toner according to the present invention comprises, by way of example:

(1) a dissolving step of dissolving a release agent in a polymerizable monomer to thereby prepare a monomer solution,

(2) a dispersing step of dispersing the obtained monomer solution in a water-base medium,

(3) a polymerizing step of subjecting an aqueous dispersion system of the obtained monomer solution to polymerizing to thereby prepare a liquid dispersion (Latex) of resin particles containing the release agent,

methacrylic acid, and 5.6 g of n-octyl-3-mercaptopropionate and the resulting mixture was heated to 90 ℃ to dissolve the Exemplified compound to thereby prepare a monomer solution.

On the other hand, a flask equipped with a stirring device was charged with a surfactant solution (water-base medium) obtained by dissolving 1.6 g of the anionic surfactant (1) in 2700 ml of deionized water, and the internal temperature was raised to 98 ℃. Then, the Latex (1H) obtained by the first polymerization step was added in an amount of 28 g in terms of solid content.

Then, the monomer solution was mixed and dispersed in the surfactant solution containing the Latex (1H) by using a mechanical dispersing apparatus "CLEARMIX" (available from M Technique Co., Ltd.) having a circulation path, whereby an emulsion (dispersion) containing emulsified articles (oil droplets) dispersed with a uniform dispersed particle diameter was prepared.

After that, an initiator solution prepared by dissolving 5.1 g of polymerization initiator (KPS) in 240 ml of deionized water and 750 ml of deionized water were added to the dispersion (emulsified liquid), and the resulting system was heated with stirring at 98 ℃ for 12 hours, whereby polymerization reaction (reaction of the second polymerization step) was conducted to prepare a dispersion of composite resin particles (hereinafter

particles having a structure in which the surface of each resin particle of high molecular weight is covered with medium molecular weight resin, and further, the surface of an intermediate layer of the medium molecular weight resin is covered with low molecular weight resin.

It was confirmed that the composite resin particles forming the obtained Latex (1HML) had a weight average particle diameter of 122 nm, and the resin forming the composite resin particles had three peaks of molecular weight at 138,000, 80,000, and 13,000.

[Preparation Example 2 of Resin Particles]

A dispersion Latex (hereinafter referred to as "Latex (2HML)") of composite resin particles each composed of the core particle, the intermediate layer, and the outer layer was prepared in the same manner as in Preparation Example 1 of Resin Particles except that 7.08 g of sodium dodecyl benzene sulfonate (SDS: anionic surfactant) was used in place of 7.08 g of the anionic surfactant (1) in the step of forming core particles in Preparation Example 1.

It was confirmed that the composite resin particles forming the obtained Latex (2HML) had a weight average particle diameter of 110 nm, and the resin forming the composite resin particles had three peaks of molecular weight at 138,000, 80,000, and 12,000.

Mixer H" (available from Keyence Corporation), whereby the elastic layer coating liquid was prepared.

[Preparation of Intermediate Layer Coating Liquid]

0.2 parts by mass of conductive carbon black "Ketjen black" (available from Lion Akzo Co., Ltd.) and 0.3 parts by mass of conductive carbon black "Printex XE2" (available from Degussa AG) were added to a solution prepared by dissolving 5 parts by mass of styrene butadiene elastomer "AR-S39948A" (available from Aron Kasei Co., Ltd) in 100 parts by mass of toluene as a solvent, and the obtained liquid mixture was uniformly dispersed by the stirring/defoaming apparatus "Hybrid Mixer H" (available from Keyence Corporation), whereby the intermediate layer coating liquid was prepared.

[Preparation of Surface Layer Coating Liquid]

100 parts by mass of polyurethane resin emulsion "YODOSOLRX-7" (available from Japan NSC Co., Ltd.) having a solid content of 35 wt%, 0.35 parts by mass of conductive carbon black "Valcan XC-7" (available from Cabot Corporation), 3.5 parts by mass of roughness-imparting particles "Silica Sylophere 470" (available from Fuji Silysia Chemical LTD), and 8 mass % of polymethyl methacrylate particles 'Epostar MA-1010" (available from Nippon Shokubai Co., Ltd.) having an